

United States of America
Department of Transportation — Federal Aviation Administration
Supplemental Type Certificate

Number SA1368WE

This certificate, issued to RILEY TURBOSTREAM CORPORATION

*certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part * of the Regulations. * See page 8 of this STC for certification basis.*

Original Product — Type Certificate Number: 816
Make: de Havilland
Model: D.H. 114 Heron Series 2A, 2DA, 2X

Description of Type Design Change: Installation of Lycoming IO-540 series engines.
See pages 3 through 8 of this STC for required descriptive data.

Limitations and Conditions: The limitations and conditions of Aircraft Specification No. A-816 apply except as outlined in pages 3 through 10 of this STC.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked, or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: December 27, 1965

Date reissued: August 28, 1967

Date of issuance: March 3, 1967

Date amended: Revision 8 - February 23, 1977
See page 8 of this STC for previous amendment dates.

By direction of the Administrator



Don P. Watson

(Signature)

Don P. Watson
Chief, Engineering and Manufacturing Branch

(Title)

Any alteration of this certificate is punishable by a fine of not exceeding \$1,000, or imprisonment not exceeding 3 years, or both.

This certificate may be transferred in accordance with FAR 21.47.

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Limitations and Conditions:

- I - Model D.H. 114 Heron Series 2X as modified by this STC (Basic configuration and configuration B). Approved March 3, 1967
Configuration B same as Basic Configuration except for simplified cockpit controls.

Engines	Four Lycoming IO-540-G1A5 or IO-540-K1C5 modified in accordance with STC SE6WE to incorporate turbo-superchargers. See NOTE 4.										
Fuel	100/130 Minimum Grade Aviation Gasoline										
Engine Limits	29.5 in.hg. 2575 rpm (290 HP) for all operations from sea level to maximum operating altitude of 17,000 feet.										
Propellers	Four Hartzell HC-A3VK-2/V8433-7 constant speed										
Propeller Limits	Pitch settings at 30 in. station Low 14°, Feather 79° Diameter 76.625 inches to 77.625 inches.										
Airspeed Limits	<table border="0"><tbody><tr><td>Normal Operating Limit</td><td>174 knots (200 MPH) I.A.S.</td></tr><tr><td>Never Exceed</td><td>200 knots (230 MPH) I.A.S.</td></tr><tr><td>Flaps extended 0-20°</td><td>135 knots (155 MPH) I.A.S.</td></tr><tr><td>20° to fully extended</td><td>100 knots (115 MPH) I.A.S.</td></tr><tr><td>Landing Gear Extended</td><td>135 knots (155 MPH) I.A.S.</td></tr></tbody></table>	Normal Operating Limit	174 knots (200 MPH) I.A.S.	Never Exceed	200 knots (230 MPH) I.A.S.	Flaps extended 0-20°	135 knots (155 MPH) I.A.S.	20° to fully extended	100 knots (115 MPH) I.A.S.	Landing Gear Extended	135 knots (155 MPH) I.A.S.
Normal Operating Limit	174 knots (200 MPH) I.A.S.										
Never Exceed	200 knots (230 MPH) I.A.S.										
Flaps extended 0-20°	135 knots (155 MPH) I.A.S.										
20° to fully extended	100 knots (115 MPH) I.A.S.										
Landing Gear Extended	135 knots (155 MPH) I.A.S.										
C.G. range (with landing gear extended)	<p>(-1.46) to (+4.6) at 12,499 lbs. (-6.35) to (+4.6) at 8,900 lbs. or less Distances shown are plus (+) <u>behind</u> and minus (-) <u>ahead</u> of the datum.</p> <p>Straight line variation between points given. Landing gear retraction moment +3180 in.lb.</p>										
Maximum weight	Takeoff 12,499 lbs. Landing 11,900 lbs. See NOTE 2 for 12,499 lbs. landing weight)										
Maximum operating altitude	17,000 ft. M.S.L.										

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Minimum crew	Two
Fuel capacity (usable)	378 U. S. gallons (in wings) Two tanks 67 U. S. gallons each (-5.5) Two tanks 122 U. S. gallons each (+21.6)
Oil capacity	13 U. S. quarts per engine (-58.5)
Serial Nos. eligible	All Series 2X airplanes that are eligible for U. S. Airworthiness Certification under Type Certificate No. 816 and have been modified in accordance with FAA Sealed Technical Service Summary Drawing No. 828. Drawing 828 Revision "D" or subsequent FAA Sealed revision is required for Basic Configuration aircraft, and Drawing 828 Revision "F" or subsequent FAA Sealed revision is required for Configuration B aircraft. See NOTE 5.

II - Model D.H. 114 Heron Series 2X as modified by this STC (Configuration A).
Approved November 21, 1967
Same as Basic Configuration except for installation of non-supercharged engines.

Engines	Four Lycoming IO-540-G1A5 or IO-540K1C5 - See NOTE 4.
Fuel	100/130 Minimum Grade Aviation Gasoline
Engine limits	2575 rpm, full throttle (290 HP) for all operations
Propellers	Four Hartzell HC-A3VK-2/V8433-7 constant speed
Propeller limits	Pitch settings at 30 in. station Low 14°, Feather 79° Diameter 76.625 inches to 77.625 inches
Airspeed limits	Normal operating limit 174 knots (200 MPH) I.A.S. Never Exceed 200 knots (230 MPH) I.A.S. Flaps extended 0-20° 135 knots (155 MPH) I.A.S. 20° to fully extended 100 knots (115 MPH) I.A.S. Landing gear extended 135 knots (155 MPH) I.A.S.

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C.G. range (with landing gear extended)	(-1.46) to (+4.6) at 12,499 lbs. (-6.25) to (+4.6) at 8,900 lbs. or less Distances shown are plus (+) behind and minus (-) ahead of the datum. Straight line variation between points given. Landing gear retraction moment +3180 in.lbs.
Maximum weight	Takeoff 12,499 lbs., landing 11,900 lbs. (See NOTE 2 for 12,499 lbs. landing weight)
Maximum operating altitude	17,000 ft. M.S.L.
Minimum crew	Two
Fuel capacity (usable)	378 U.S. gallons (in wings) Two tanks 67 U.S. gallons each (-5.5) Two tanks 122 U.S. gallons each (+21.6)
Oil Capacity	13 U.S. quarts per engine (-58.5)
Serial Nos. eligible	All Series 2X airplanes that are eligible for U.S. Airworthiness Certification under Type Certificate No. 816 and have been modified in accordance with FAA Sealed Aircraft Technical Service Summary Drawing 828 Revision "H" or subsequent FAA Sealed revision. See NOTE 5.

III - Model D.H. 114 Heron Series 2A or 2DA as modified by this STC

(Configuration D). Approved April 9, 1968

The modifications are identical for Basic Configuration and Configuration D.

Engines	Four Lycoming IO-540-G1A5 or IO-540-K1C5 modified in accordance with STC SE6WE to incorporate turbo-superchargers. See NOTE 4.
Fuel	100/130 Minimum Grade Aviation Gasoline
Engine limits	29.5 in.hg, 2575 rpm (290 HP) for all operations from sea level to maximum operating altitude of 17,000 feet.

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Propellers	Four Hartzell HC-A3VK-2/V8433-7 constant speed
Propeller limits	Pitch settings at 30 in. station Low 14°, Feather 79° Diameter 76.625 inches to 77.625 inches.
Airspeed Limits	Normal Operating limit 174 knots (200 MPH) I.A.S. Never Exceed 200 knots (230 MPH) I.A.S. Flaps extended 0-20° 135 knots (155 MPH) I.A.S. 20° to fully extended 100 knots (115 MPH) I.A.S. Landing gear extended 135 knots (155 MPH) I.A.S.
C.G. range (with landing gear extended)	(-1.46) to (+4.6) at 12,499 lbs. (-6.35) to (+4.6) at 8,900 lbs. or less Distances shown are plus (+) behind and minus (-) ahead of the datum. Straight line variation between points given. Landing gear retraction moment +3180 in.lb. See NOTE 3 for C.G. range at higher maximum weights.
Maximum weight	Takeoff 12,499 lbs., landing 12,499 lbs. See NOTE 3 for increased weights
Maximum operating altitude	17,000 ft. M.S.L.
Minimum crew	Two
Fuel capacity (usable)	494 U.S. gallons (in wings) Two tanks 67 U.S. gallons each (-5.5) Two tanks 122 U.S. gallons each (+21.6) Two pairs of tanks 58 U.S. gallons per pair (-4.56)
Oil capacity	13 U.S. quarts per engine (-58.5)
Serial Nos. eligible	All Series 2A and 2DA airplanes that are eligible for U.S. Airworthiness Certification under Type Certificate No. 816 and have been modified in accordance with FAA Sealed Aircraft Technical Service Summary Drawing 828 Revision "D" or subsequent FAA Sealed Revision. See NOTE 5.

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IV - Model D.H. 114 Heron Series 2A or 2DA as modified by this STC
(Configuration C), Approved July 26, 1968
The modifications are identical for Configuration A and C except
for the addition of an elevator down spring in the Configuration C.

Engines	Four Lycoming IO-540-G1A5 or IO-540-K1C5 See NOTE 4.
Fuel	100/130 Minimum Grade Aviation Gasoline
Engine Limits	2575 rpm, full throttle (290 HP) for all operations
Propellers	Four Hartzell HC-A3VK-2/V8433-7 constant speed
Propeller Limits	Pitch settings at 30 in. station. Low 14° Feather 79° Diameter 76.625 inches to 77.625 inches
Airspeed Limits	Normal operating limit 174 knots (200 MPH) I.A.S. Never exceed 200 knots (230 MPH) I.A.S. Flaps extended 0-20° 135 knots (155 MPH) I.A.S. 20° to fully extended 100 knots (115 MPH) I.A.S. Landing gear extended 135 knots (155 MPH) I.A.S.
C.G. range (with landing gear extended)	(-0.14) to (+6.5) at 13,500 lbs. (-6.35) to (+6.5) at 8,900 lbs. or less Distances shown are plus (+) <u>behind</u> and minus (-) <u>ahead</u> of the datum. Straight line variation between points given. Landing gear retraction moment +3180 in. lb.
Maximum weight	Takeoff 13,500 lbs., landing 13,150 lbs., zero fuel 12,527 lbs. All weight in excess of 12,937 lbs. must be fuel in outer wing tanks.
Maximum operating altitude	17,000 ft. M.S.L.
Minimum crew	Two

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Fuel capacity (usable)	494 U. S. gallons (in wings) Two tanks 67 U.S. gallons each (- 5.5) Two tanks 122 U.S. gallons each (+21.6) Two pairs of tanks 58 U.S. Gallons per pair (-4.56)
Oil capacity	13 U.S. quarts per engine (-58.5)
Serial Nos. Eligible	All Series 2A and 2DA airplanes that are eligible for U.S. Airworthiness Certification under Type Certificate No. 816 and have been modified in accordance with FAA Sealed Aircraft Technical Service Summary Drawing 828 Revision "I" or subsequent FAA Sealed revision. See NOTE 5.

Data Pertinent to all Models

Certification Basis Original Type Certificate No. A-816:

CAR Part 10

Modification covered by this STC:

(1) CAR 4b effective December 31, 1953 plus Amendment 4b-1, or (2) "equal to or better than original CAR Part 10 certification" as appropriate, and (3) exemption No. 587 from CAR 4b.443, dated October 7, 1966 and Special Condition outlined in Type Inspection Authorization No. T1754WE.

Previous dated of
amendment:

- | | |
|----------------------|---------------------|
| 1. November 21, 1967 | 5. May 16, 1969 |
| 2. April 9, 1968 | 6. October 31, 1972 |
| 3. March 4, 1969 | 7. February 6, 1976 |
| 4. March 17, 1969 | |

Required
Equipment

The following Aircraft Technical Service, Inc. FAA Approved Airplane Flight Manual for the de Havilland D.H. 114 Heron as modified by STC SA1368WE are required:

1. Series 2X Basic Configuration - Manual dated March 3, 1967.
2. Series 2X Configuration Z - Manual dated March 3, 1967 with Revision dated November 21, 1967.

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3. Series 2X Configuration B - Manual dated March 3, 1967 with Revision dated November 8, 1967.
4. Series 2A or 2DA Configuration D - Series 2X Manual dated March 3, 1967 as revised April 9, 1968 to include Series 2A and 2DA at 12,499 lbs. maximum weight. Series 2A or 2DA Manual dated July 26, 1968 required for operation at 13,500 lbs. maximum takeoff weight.
5. Series 2A or 2DA Configuration C - Manual dated July 26, 1968.
6. Configuration A or C with Lycoming IO-540-K1C5 engines installed - Manual Supplement dated May 16, 1969 in addition to above noted Manual.
7. FAA Airplane Flight Manual Supplement dated February 23, 1977 is optional for use with propellers from 76.625 inches to 77.625 inches dia. Airplane Flight Manual Supplements listed above show 77 inch propeller diameter only.

Refer to the applicable Aircraft Technical Service drawings shown on Summary Drawing 828 for additional equipment required as a result of the incorporation of this STC.

Service Information

The de Havilland D.H. 114 Heron Maintenance and Repair Manual shown in the "Required Equipment" section of Aircraft Specification A-816 must be retained for all portions of the airplane not modified by this STC. Applicable FAA Approved Lycoming and Hartzell maintenance and overhaul manuals must be substituted for the de Havilland engine and propeller manuals shown in A-816.

NOTE 1: Current weight and balance data including list of equipment included in the certificated empty weight, and loading instructions, when necessary, must be provided for each aircraft at the time of airworthiness certification for return to service.

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NOTE 2: The maximum landing weight of Series 2X airplanes may be increased to 12,499 lbs. when de Havilland Heron Mod. 757 is incorporated. Airplane Flight Manual Revision, dated January 8, 1968, is required for operation at the higher landing weights permitted with Mod. 757.

NOTE 3: The maximum takeoff and landing weights of Series 2A or 2DA airplanes may be increased to 13,500 and 13,150 lbs., respectively, when an elevator down spring is installed in accordance with Aircraft Technical Service Drawing No. 1014. Zero fuel weight is 12,527 lbs. and all weight in excess of 12,937 lbs. must be fuel in outer wing tanks. The applicable C.G. range at these increased weights is:

(-0.14) to (+6.5) at 13,500 lbs.
(-6.35) to (+6.5) at 8,900 lbs. or less

Series 2A or 2DA Manual dated July 26, 1968 is required for operation at these increased weights.

NOTE 4: Engine Nos. 1 and 4 must incorporate the alternate .48 to 1 hydraulic pump drive ratio when engine driven pneumatic pumps are installed on those engines.

NOTE 5: Effective with Revision J, Aircraft Technical Service Summary Drawing No. 828 has been re-identified Riley Aeronautics Corp. Drawing List No. 828.

NOTE 6: Deleted.

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